

REMARKS

Claims 1-77 are pending in the application, of which claims 1, 2, 4-12, 15, 16, 25, 26, and 29-77 have been withdrawn. Applicants hereby cancel the withdrawn claims. Claims 3, 13, 14, 17-19, 21, 24, and 27 have been amended. Support for the claim amendments and new claims may be found throughout the specification, including the claims as originally filed. No new matter has been added. Amendment of the pending claims and specification should in no way be construed as an acquiescence, narrowing, or surrender of any subject matter. The amendments are being made not only to point out with particularity and to claim the present invention, but also to expedite prosecution of the present application. Applicants reserve the option to prosecute the pending claims further, or other ones, in the instant or a subsequent patent application.

Support for the new phrase "polypeptide sequence [that] comprises at least one catalytic domain of histone deacetylase 6 (HDAC6) or has HDAC6 activity" in claims 3, 13, and 14 may be found on page 55 third paragraph and page 57 second paragraph.

Claim 13 has also been amended to recite "histone deacetylase 6 (HDAC6)" in place of "HDx". Claims 14, 17, 18, 19, 24, 27 have been amended to recite "HDAC6" in place of "HDx". Support for both amendments may be found on page 14 lines first paragraph and page 22 second paragraph.

Claims 18, 19 and 21 have been amended to proper dependent form. Support for the claim amendment "131 kD to 208 kD" may be found on page 4, fourth paragraph and page 57 third paragraph.

Support for new claims 78 and 79 may be found in Figure 1D and on page 10 first paragraph, page 55, second paragraph and page 57 second paragraph.

Support for new claims 80-82 may be found in Figure 3 and on pages 56-57.

Support for new claim 83 may be found on page 74 second paragraph.

Support for new claim 84 may be found on page 66 second and third paragraph and page 67 first paragraph.

Amendments to the specification have been made to correct minor typographical errors, as well as to incorporate and support new sequence identification numbers in accord with the corrected sequence listing submitted herewith. No new matter has been added by these amendments.

The Examiner has indicated that sequence with GenBank Accession No. NM\_006044 cannot be found. The Applicants respectfully provide the Examiner with a printed copy (Exhibit A) of the sequence as downloaded from the following html:

[http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=nucleotide&list\\_uids=13128863&dopt=GenBank&term=NM\\_006044](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=nucleotide&list_uids=13128863&dopt=GenBank&term=NM_006044).

The Examiner has also noted examples that are not in compliance with the requirements of 37 C.F.R. 1.821(d). Based on a paper and electronic sequence listing submitted in the Response to Notice to File Missing Parts on October 4, 2001, the Applicants have amended the figure legends for Figures 1-17 accordingly. Enclosed herewith is a new copy and diskette of the sequence listing.

### CLAIM OBJECTIONS

The Examiner has objected to claims 13, 14, 17, 18-24, 27, and 28 because they recite "*HDx* polypeptide", which Examiner asserts is not clearly defined in the specification. Claim 3 has been amended to recite "histone deacetylase 6 (HDAC6)" in place of "*HDx*", and claims 13, 14, 17, 18, 19, 24, and 27 have been amended to recite "HDAC6". Support for these amendments may be found on page 1 line 3 and page 3 lines 7-9.

The Examiner has also objected to claim 18 as being of improper dependent form. Accordingly, Applicants have amended claims 18, 19, and 21 to accord with proper dependent form.

Finally, the Examiner has objected to claims 17 and 18 because the scope of claim 17 does not include 40 to 90 kD fragments of SEQ ID NO: 6 because its molecular weight is more than 90 kD. Applicants have amended claim 18 to recite "131 kD to 208 kD", support for which may be found on page 4, fourth paragraph and page 57 third paragraph.

### CLAIM REJECTIONS

#### Rejection of claims under 35 U.S.C. § 112, first paragraph

##### Written description

The Examiner has rejected claim 3 as "containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner has pointed out that claim 3 has no functional limitations. In order to expedite prosecution and not in acquiescence to the rejections, Applicants have amended claim 3 to include the limitation "polypeptide sequence or fragment thereof that comprises at least one catalytic domain of histone deacetylase 6 (HDAC6) or has HDAC6 activity". With respect to this amendment, Applicants believe that claim 3 is fully in accord with the support provided within the specification, and that such amendment places claim 3 in condition for allowance.

##### Enablement

The Examiner has also rejected claim 3 because the specification "while being enabling for a nucleic acid of SEQ ID NO:5, does not reasonably provide enablement for a nucleic acid that hybridizes to SEQ ID NO:5 and encodes a polypeptide with unknown function". The Examiner further states that it would require undue experimentation as the specification "provides no guidance as to what is the function of other polypeptides encoded by the claimed nucleic acids". Applicants respectfully traverse this rejection.

Applicants respectfully urge that the specification provides adequate support to teach one of ordinary skill in the art how to use a nucleic acid that hybridizes to SEQ ID NO:5 as well the function of the polypeptide encoded by such a nucleic acid. However, in order to expedite prosecution, and not in acquiescence to the rejection, Applicants have amended claim 3 to recite "polypeptide sequence or fragment thereof that comprises at least one catalytic domain of histone deacetylase 6 (HDAC6) or has HDAC6 activity". Applicants respectfully urge that adequate enablement for the claimed HDAC6 nucleic acids and their function is provided in the specification on Figure 1, Figure 4, pages 55-58, and pages 63-77.

Applicants respectfully request reconsideration and withdrawal of all rejections under 35 U.S.C. § 112, first paragraph, insofar these may apply to the amended claims. It is believed that the amended claims comply fully with 35 U.S.C. § 112, first paragraph, and thus favorable reconsideration and allowance are respectfully solicited.

Rejection of claims under 35 U.S.C. § 112, second paragraph

The Examiner has rejected claims 3, 13, 14, 17, 18-24, 27 and 28 for "failing to particularly point out and distinctly claim the subject matter". Specifically the Examiner points out that "claim 3 recites stringent conditions" and that "[d]epending on the exact conditions, different nucleic acids will hybridize to SEQ ID NO:5 rendering the metes and bounds of the claims unascertainable". Applicants respectfully traverse this rejection.

In order to expedite prosecution and not in acquiescence to the rejections, Applicants have amended claim 3 to recite "polypeptide sequence or fragment thereof that comprises at least one catalytic domain of histone deacetylase 6 (HDAC6) or has HDAC6 activity". With respect to this amendment, Applicants believe that claim 3 is fully in accord with the support provided within the specification and that the amendment provides metes and bounds to the claim.

The Examiner has further rejected claims 13, 14, 17, 18-24, 27 and 28 as the meaning of the term "fragment thereof" as recited in these claims, is "unclear whether said fragment is an *Hdx* polypeptide or just any fragment". Applicants have amended claims 13 and 14 to recite the phrase "polypeptide sequence or fragment thereof that comprises at least one catalytic domain of histone deacetylase 6 (HDAC6) or has HDAC6 activity". Applicants believe that the amended claims clearly and distinctly claim the subject matter.

Applicants respectfully request reconsideration and withdrawal of all rejections under 35 U.S.C. § 112, second paragraph, insofar these may apply to the amended claims. Applicants respectfully submit that the claim amendments made herein fully overcome and obviate the stated grounds for rejection of said claim. Applicants respectfully urge the Examiner to reconsider and withdraw the rejections under 35 U.S.C. § 112, second paragraph.

Rejection of claims under 35 U.S.C. § 102

Claims 3, 13, 14, 17 and 18 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Strom et al (GenBank accession no. AJ011972, October 19, 1998). Specifically, the Examiner has stated that Strom et al. teaches a "nucleic acid of 4099 bp encoding histone-deacetylase-like protein (JM21) of 1215 amino acids having the amino acid sequence that is 100 % identical to SEQ ID NO:6". Applicants respectfully traverse this rejection.

To anticipate a claim, the reference must teach each and every element of the claim. Applicants respectfully direct the Examiner to Exhibit B (NCBI Blast sequence alignment of AJ011972 and SEQ ID NO. 6). Exhibit B demonstrates that SEQ ID NO 6 (1215 amino acids) is 99% identical to the amino acid sequence of AJ011972 (also 1215 amino acids). Amino acid 994 of SEQ ID NO 6 is a threonine residue whereas amino acid 994 of the protein sequence of AJ011972 is an isoleucine residue. Hence, the amino acid sequence disclosed in Strom, et al. is not identical to the amino acid sequence of SEQ ID NO: 6. Furthermore, Strom, et al. does not disclose any information about the function or structure of the polypeptide encoded by the nucleic acid of 4099 bp encoding histone-deacetylase-like protein (JM21) of 1215 amino acids disclosed in Strom, et al. Specifically, Strom, et al. does not disclose the histone deacetylase 6 activity of the sequence, nor does it provide any information as to what portions of the sequence comprise the catalytic domains, all of which are limitations of claims 3, 13, 14, 17, and 18.

Accordingly, because Strom, et al. does not teach each and every element of claims 3, 13, 14, 17, and 18, Applicants respectfully request reconsideration and withdrawal of these rejections under 35 U.S.C. § 102.

Rejection of claims under 35 U.S.C. § 103

The Examiner has rejected claims 19-24, 27 and 28 as being unpatentable over Strom et al. in view of Schreiber et al. (WO 97/35990). Applicants respectfully traverse this rejection.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Strom et al. and Schreiber et al. are devoid of any suggestion, motivation, or guidance to combine each other to make nucleic acids encoding fusion proteins comprising HDAC6 polypeptides or expression vectors, host cells, cell culture and transfection systems for producing recombinant HDAC6. Therefore, Applicants respectfully submit that the claimed invention cannot be deemed obvious in light of the combined teachings of these two references, and respectfully request that the present rejection be withdrawn.

**CONCLUSION**

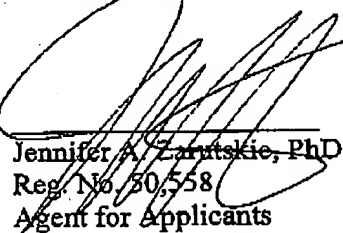
For the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the pending rejections. Applicants believe that the claims now pending are in condition for allowance, and notification of such is respectfully requested.

The Commissioner is hereby authorized to credit any overpayment or charge any deficiencies to Deposit Account Number 06-1448, Reference HUV-037.01.

If, for any reason, a telephonic conference with the Applicant would be helpful in expediting prosecution of the instant application, the Examiner is invited to call Applicants' Agent at the telephone number provided below.

Respectfully submitted,

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